

# Getting to Know Your Digital Camera

## Objectives:

Participants in this course will learn the basic functions of a digital camera.

Course instruction will also include information about image size and resizing, and uploading images to a computer.

- Students are encouraged to bring their own camera.

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## ***Focusing Your Camera***

### **Center AF (Auto Focus)**

Most digital cameras use contrast detection to auto focus (AF). Usually, the focus point is a small rectangle in the middle of the viewfinder frame (**Center AF**), though many digital cameras now also offer additional AF points (**Multi-Point AF**).

### **Center AF**

If you look in the LCD monitor of your digital camera, there will usually be a rectangle at the center of the screen, commonly called the **AF Frame**. When your digital camera is set to Center AF mode, this rectangle in the middle of the screen is your AF point.

### **Multi-Point AF**

Multi-Point AF automatically selects between a number of AF points (the most common seems to be 5 or 9 AF points -- i.e. 4 or 8 AF points clustered around a center focus point) and finds the most contrasty subject among those AF points.

### **An Example**

If your default AF mode is Multi-Point AF and some of your shots are sometimes out of focus, it *may* be that Multi-Point AF is the culprit.

Here is an example of how Multi-Point AF focused on the more contrasty background well behind my main subject (the lone green leaf left on the bush).

Even though the green leaf is in the center of the frame, Multi-Point AF has chosen to focus on the more contrasty background around it instead.

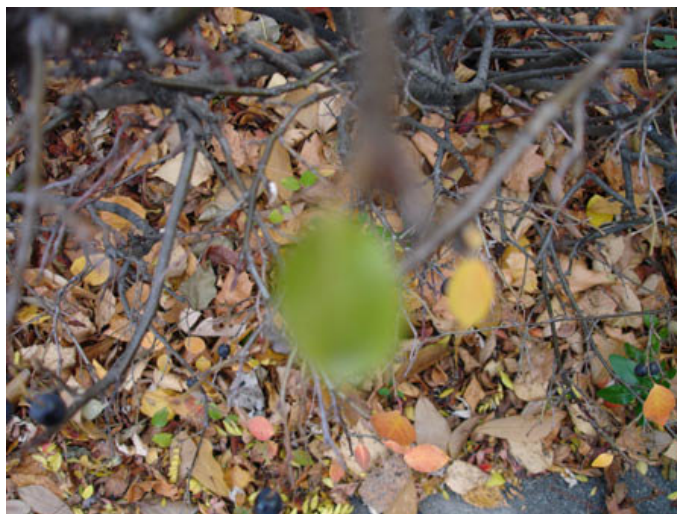
The result is that the ground of fallen leaves come out in focus, while my main subject is out of focus.

I took a couple more shots with the same result before I realized what the problem was. I immediately went into the camera's menu to switch AF mode from Multi-Point AF to Center AF. This time, I got the result that I was after: the lone green leaf in focus against a nicely blurred backdrop!

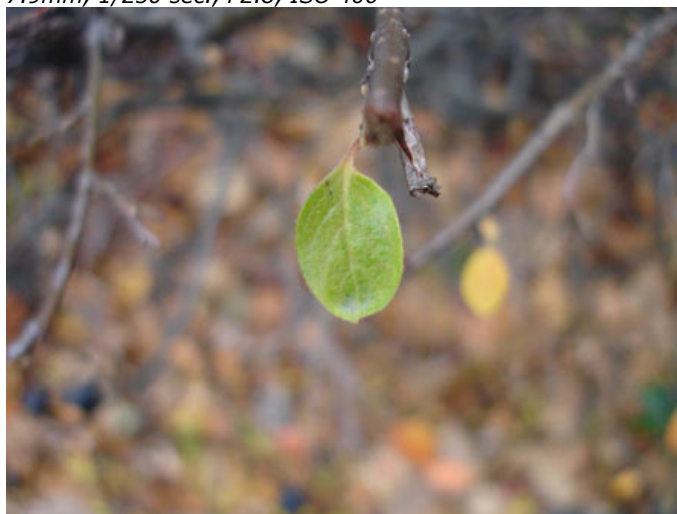
### **Summary**

Multi-Point AF works pretty well usually but sometimes the camera will focus on something else besides your main subject if

[http://www.photoxels.com/tutorial\\_center-af.html](http://www.photoxels.com/tutorial_center-af.html)



*Sony DSC-P150 Cyber-shot: 5 Area Multi-Point AF  
Program AE, Multi-Pattern Metering, Macro ON  
7.9mm, 1/250 sec., F2.8, ISO 400*



*Sony DSC-P150 Cyber-shot: Center AF  
Program AE, Multi-Pattern Metering, Macro ON  
7.9mm, 1/200 sec., F2.8, ISO 400*

that something else happens to fall under one of the AF points and is also more contrasty than your main subject. In these instances, switch AF mode to Center AF, point the AF Frame on your subject and half-press the shutter release button to lock focus on your main subject, then reframe, if necessary, before fully pressing the shutter release button to take the shot.

## **Macro Setting**

<http://drscavanaugh.org/digitalcamera/macro.htm>

While you can use a digital camera at the standard settings, you can often see much more detail by using the macro setting on the camera. A macro setting changes the focus of the camera so it can focus on very close objects. The macro setting is for photographing objects within a few inches or feet away. One of my digital cameras has a macro setting that works within one centimeter, to get very close shots (light can be an issue when you get that close). You can use the macro setting to improve your ability to see small details, similar to using a magnifying glass. You might want to use a small tripod to hold the camera steady. I also find that an active display screen is the easiest to use, since you don't have to estimate which portion of the viewfinder is focusing for the macro setting. Don't forget to change away from the macro setting when you are finished (if the camera doesn't do it automatically). People who wear bifocals especially should be careful to remember to change the camera setting back to normal when finished with macro, as it may appear out of focus when looking at the LCD screen with the glasses. If the camera is set at macro and you are trying to take a normal picture then the focus will be set wrong and the image will be out of focus. I know of one teacher who took a few pictures up close on the macro setting, and then forgot to change back to the normal setting, and she used up the rest of her camera memory space with the pictures all out of focus.

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## **Camera Shake**

If your digital camera makes even a slight movement when you take a picture, the chance of having a blurred photo increases. To help minimize camera shake, take a few moments to learn under what conditions it can happen as well as the ways to help prevent, if not completely eliminate, it.

Camera shake typically happens in low-light situations when the digital camera aperture is wide-open, or when using a long telephoto lens. The best way to prevent camera shake is to mount your camera on a tripod or other flat, level support. When using a tripod, if you don't have a remote, use the self-timer to trigger the shutter button.



If you don't have a tripod, hold the camera with both hands and keep it steady by leaning and bracing yourself against a wall, tree or pole, the roof of a car, anything. You can also hold your camera in both hands and brace your elbows against your body.



Another way to help minimize camera shake is to use the viewfinder instead of the LCD to compose shots. Bracing the camera against your face helps steady it.

Digital cameras with long telephoto lenses are more prone to camera shake when hand-held. Some cameras use image stabilization technology, which helps prevent images from becoming blurred due to camera shake.

Don't forget to depress the shutter-release button down in two steps. More photos have been improperly exposed and focused, as well as blurred, because individuals do not use the shutter-release button correctly.

## Zoom

### *Optical Zoom v. Digital Zoom*

Most digital cameras come with a zoom lens, which allows you to adjust the length of the lens to either move closer to the object (a long lens) or to move farther away from the object (a short lens).

Digital cameras usually come with two types of zoom on them. The first is the optical zoom which is identical to that found on traditional cameras. When using optical zoom, you can get closer to a particular object without any sacrifice in image quality.

Digital zoom is a new type of zoom that is found only in digital cameras. When using digital zoom, the camera itself modifies the image electronically to bring the object you are photographing closer. It does this by cropping the image and then blowing up the middle of the image resulting grainy, blocky images.

#### NOTE:

- If possible, walk closer to your subject rather than using the Zoom feature on your camera.
- Frame your subject... Look at the four corners of the view finder making certain there is not "icky" content distracting from your subject.
  - If you can't move in closer try the Zoom
  - If you still have "icky" content, use the crop tool in your favorite image tool to capture your subject.

There is a world of difference between the digital and optical zoom. See the photo examples below of pictures taken with both types of zooms to illustrate the differences:

Here is a photo taken utilizing the digital zoom. You can see that the image is blurry and digitized.

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Here is the same picture, taken using only the optical zoom. With most cameras, that range is much smaller and the zoom isn't as close. The quality of the image is far better though.





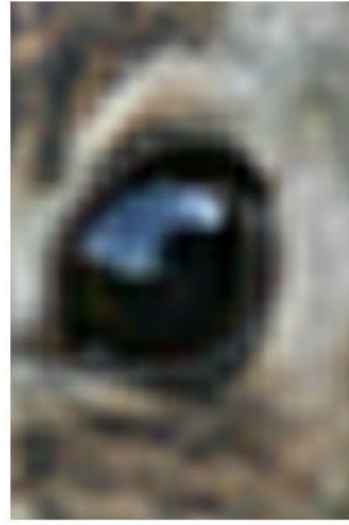
Even if you can't get as close, use photo editing software to crop instead of using the digital zoom. You can't crop a tremendous amount, but you can get closer while retaining quality. This is the same image shown above as the optical zoom example.



Original



10x Optical



10x Digital

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## Flash

Lucky for us, an automatic flash is included on just about every camera sold today. And most include a fill-flash setting for those less-than-perfect lighting situations that need a little boost. That doesn't mean the camera is fail-proof. You still need to know how and when to use these features.

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### General flash tips

Our favorite flash tips bear repeating:

- Stay within flash range. Check your camera manual for the recommended range (usually 4 to 10 feet).
- Batteries that are approaching exhaustion will not give full flash power even if the camera is still working.
- Prevent red eye by asking your subjects to look slightly away from the camera, and turn on all the room lights to shrink their pupils.
- Avoid use of the "red eye reduction" flash setting—to many people it's distracting and confusing.

### Fill flash

Fill flash is included on most of today's cameras, and is a favorite feature. It is just enough flash to fill in areas of a picture that would otherwise be too dark. Use fill flash for sunny day portraits to fill in those dark shadows under the eyes, nose, or under the rim of a baseball hat. It can even help in a difficult lighting situation, such as a dark complexion on a beach, or a child playing in the snow. Fill flash is also useful for side-lit and back-lit pictures. For instance, a backlit scene may have enough bright areas in the background to provide an "average" brightness for the entire picture, but the actual subject is left in the dark. Fill flash balances the scene so that the subject is properly exposed, and the background is left alone.



### **Flash off**

There are occasions when your camera thinks the flash is needed, but in fact it isn't. You probably have a "Flash Off" (or similar wording) setting on your camera. Here are a few examples of when to use it:

- When you are too far away from your subject for the flash to be effective.
- When the flash would create annoying reflections from mirrors and other shiny surfaces.
- At sunset or in other low-light situations where you'd like a foreground subject to be silhouetted.
- Where the quality of the existing light is beautiful, like a kitten sleeping in the sunbeam.
  - Where flash is not allowed (steady yourself against a wall and anchor your elbows at your side).



### **Flash Range**

A camera's flash range tells you how far from the camera the flash will provide proper exposure. If the subject is out of range, you'll know to close the distance. Most digital cameras can tolerate some underexposure before the image suffers noticeably.

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## Digital Camera Scene Modes

### What are all those symbols for?

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You went out and purchased a digital camera and the instruction book mentions "Scene Modes" and you see a lot of funny icons on one of the dials of your camera. So what are they and what do they do?

The first thing to remember is this is a still a camera and you get a picture by having the right amount of light hit the film or light sensor in a digital camera. You do this by adjusting the size of the lens opening (Aperture), or the length of time the shutter is open (Shutter Speed). How you adjust the two of these in tandem will create a different picture. Without going into a long photography course, I will briefly explain what each of these does.

The Aperture controls how much light is hitting the sensor at any instant and the depth of focus. If I want everything in the picture to be in focus, both near and far objects, I will choose a small aperture. If I want selective focus, for example taking a portrait with a blurred background, you adjust the camera the other way.

The Shutter Speed controls how long the shutter is open so the light can get to the sensor. For a sporting event where you want to stop the action, you would use a short shutter speed, but if you want to blur the movement to imply motion, you would use a longer shutter speed. You would also use a very long shutter speed for night shots with motion you want to capture like fireworks.

How does this relate to Scene Modes? In its default setting, the camera guesses at the best exposure, adjusting the Aperture and Shutter Speed without really knowing what you are taking a picture of. It goes for an average setting. By selecting a "scene" on your camera, you are telling the camera what you are taking a picture of so it can make a better choice of how to set the camera. It generally gives more accurate and pleasing results than the default auto mode.

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Digital cameras have a variety of modes, which are optimized for specific scenes and automatically select focus and exposure. Settings such as [white balance](#) are preprogrammed by the manufacturer.

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**Backlight** - eliminates dark shadows when light is coming from behind a subject, or when the subject is in the shade. The built-in flash automatically fires to "fill in" the shadows.



NOTE: Your camera's icons may differ.

**Beach/Snow** – photographs of beach, snow and sunlit water scenes. Exposure and white balance are set to help prevent the scene from looking washed out.

**Panorama** - obtain extra wide vistas; take a series of shots then stitch them together with software to make a single photo.

**Fireworks** - [shutter speed](#) and exposure are set for shooting fireworks; pre-focusing & use of tripod recommended.

**Landscape** - take photos of wide scenes. Camera automatically focuses on a distant object.

**Macro** - take [close-up shots](#) of small objects, flowers and insects. Lens can be moved closer to the subject than in other modes. Hold the camera steady or use a [tripod](#).

**Night Portrait** - take photos of a subject against a night scene. The built-in flash and red-eye reduction are enabled; shutter-speeds are low. Use of tripod recommended.

**Night Scene** - photograph nightscapes. Preprogrammed to use slow shutter speeds. Use of tripod recommended.

**Panning** - "freeze" the action of a subject, such as a runner or moving car, while blurring the background to give the "feel" of motion. Prefocus on a point where the subject will come, track the subject smoothly with the camera and depress the [shutter-release button](#) while still moving the camera. You can also use [burst mode](#) while panning.

**Party mode** - take photos in a dim lit room; exposure and shutter speed are automatically adjusted for room brightness. Captures indoor background lighting or candlelight. Hold the camera very steady when using this mode.

**Portrait** - main subject is clearly focused and the background is out of focus (has less [depth of field](#)). Best when taking shots outside during the day. Shoot using a mid to long telephoto lens, stand close to your subject within the recommended camera range and, when possible, select an uncomplicated background that is far from the subject.

**Sports** - take photos of a fast moving subject; fast shutter speeds "freeze" the action. Best when shots are taken in bright light; pre-focusing recommended.

**Sunset** - take photos of [sunsets and sunrises](#); helps keep the deep hues in the scene.

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## Night Photography

Night photography has an attraction all its own. There's something about scintillating lights from office windows hanging in the dark of the night -- a modern version of the starry skies -- that appeal to us. Whether it's a city skyline, lamp posts on a dark and deserted street, or the front of your house all decked out with holiday lights, the challenge of capturing the mood of a night scene depends on whether your digital camera is capable of night photography and on a couple of simple techniques.

### Can My Camera Do Night Photography?

For successful night photography you need a digital camera that allows you to keep the shutter open for a long time, anywhere from 3 to 30 seconds. Check your camera specifications in the User's Manual under Shutter Speed. The shutter speeds available will be given as a range, e.g. 30 sec. - 1/2,000 sec.

If you are seriously into night photography, then you would want to ensure you purchase a digital camera that allows the longest shutter speed possible, and even Bulb (where the shutter remains open as long as you depress the shutter release button).

But before you plunk down your money for that digital camera, there's two more features to verify -- and one accessory to purchase, if you don't have it already.

### Shooting Modes

For an image to be captured by a digital camera's image sensor, the latter requires exposure to light. But at night, light is what we don't have enough of.

Some of you may have noticed that, if you select a shooting mode of Auto (A) or

Program Auto (P), your night pictures always come out too dark. They are simply underexposed. But, why is that -- if your camera's shutter speed ranges from, say 10 sec. to 1/2,000 sec.?

Go back to your camera's User's Manual and look a bit more carefully. Are all the shutter speeds available in Auto or P mode? Ah-ha, many digital cameras (we're talking consumer models here) do not make the whole shutter speed range available in A and P mode! Perhaps the slowest shutter speed available in A and P mode is only as slow as 1/3 sec. That's usually not long enough for night photography. To access the longer shutter speeds, you may need to select one of the other shooting modes, e.g. Shutter-Priority, or even switch to full Manual mode. So ensure that your digital camera has full Manual mode and allows access to the full range of slow shutter speeds in that mode.

### **Self-Timer & Remote Controller**

Another feature that you want your digital camera to have is a self-timer or, ideally, a remote controller. The purpose is to allow you to depress the shutter release button without introducing camera shake. I particularly like the remote controller, but not every camera comes with one or even has one available optionally. But almost all, if not all, cameras has a self-timer. Usually the self-timer counts down from 10 sec. I find that a bit long to wait, especially since you would need to take more than one shot and it's minus 10 with the wind chill outside. The cameras that additionally provide a 2 sec. self-timer have my nod of approval here.

### **Tripod**

A mandatory accessory that you need is a sturdy tripod. When you let the shutter stay open for a long time, the camera needs to be kept rock steady, otherwise you end up with blurred images.

### **Examples**

OK, so we have our digital camera and tripod, and are ready to venture forth into the night in search of interesting night shots. When we find one, we set up camera and tripod, frame and... what do we do now?

Well, the images below show what happens when you take the same shot using P mode, then in Manual mode with various different shutter speed/aperture combinations, all in search of the correct exposure. The camera was on a tripod for all three shots.

### **Programmed Auto Mode – Underexposed**



*Fujifilm FinePix E550  
7.2mm, Programmed Auto, Pattern  
Shutter Speed 1/4 sec., Aperture F2.8, ISO 80*

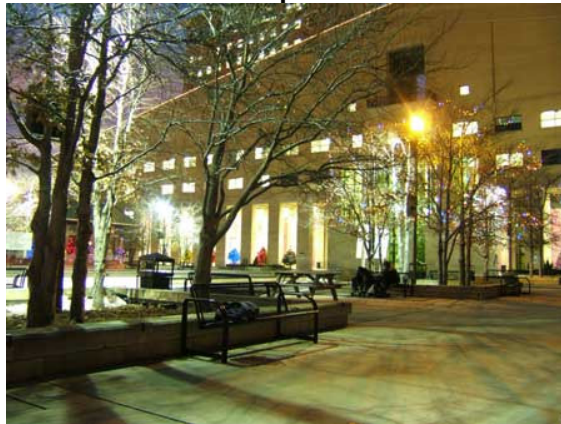
In the above example, the camera uses the slowest shutter speed and largest aperture available in P mode and at the widest focal length. The picture is underexposed.

Switching to Manual mode allows me to access the slowest shutter speed available on this camera, 3 sec. while keeping the aperture at F2.8 (the largest aperture available). The effect is immediately better, but it does seem a bit too bright, giving an almost a daylight effect.

Now it is just a matter of adjusting the shutter speed and/or aperture to obtain the desired exposure. I choose to close down the aperture so as to increase the depth of field also.

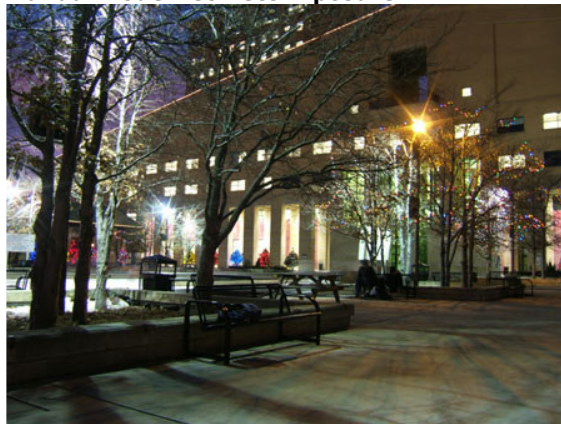
Closing down the aperture to F4.0, a more pleasant image is obtained with enough dark areas to indicate it is night time (dusk, really) and enough lighted areas to reproduce what my eyes saw at the outdoors skating rink of the Mississauga Civic Center.

#### Manual Mode – Overexposed



*Fujifilm FinePix E550  
7.2mm, Programmed Auto, Pattern  
Shutter Speed 3 sec., Aperture F2.8, ISO 80*

#### Manual Mode - Correct Exposure



*Fujifilm FinePix E550  
7.2mm, Programmed Auto, Pattern  
Shutter Speed 3 sec., Aperture F4.0, ISO 80*

## ISO

For the three pictures above, I used ISO 80, the lowest ISO available for best image quality. But what if at 3 sec. and F2.8 (i.e. at max. exposure possible for this particular camera), the image still came out too dark? In this case, I would need to increase the sensitivity of the image sensor to a higher ISO. Do note that increasing the ISO also increases the amount of noise visible in your images.

## Technique

- Take a number of shots at different shutter speed/aperture combinations.
- Immediately review the shot as soon as you've taken it.
- Ensure your LCD brightness is set to Normal, not Bright, for a truer representation of your recorded image.
- A good aperture to start with is F4.0 or F5.6 (for greatest depth of field), and adjust shutter speed up or down until you're satisfied with the shot.
- For good measure, take an extra shot past your optimum exposure setting. For example, if you were progressively using longer shutter speeds, and you think you've find the correct one, take an extra shot with the next longer shutter speed. Conversely, if you were using progressively faster shutter speeds, take an extra shot using the next faster shutter speed.

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## Size of Picture

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### Pixel Count

One of the main ways that manufacturers categorize their digital cameras is in terms of *pixel count*. This is the number of individual pixels that go into making each image. Today this number varies between 1 million (*1 Megapixel*) to around 14 million (*14 Megapixels*). A million pixels is abbreviated to MP, so a 1MP camera has 1 million pixels and a 3MP camera has 3 million pixels. Currently most popular consumer digital cameras have between 2MP and 5MP. A 3MP camera can make excellent 4"x6" prints and very good 5"x7" prints. If you intend to make lots of 8"x10" prints, then perhaps a 4MP or 5MP camera would be a better choice. Sometimes two numbers are given, total pixels and effective pixels. Total pixels count every pixel on the sensor surface. Usually the very edge pixels aren't used in the final image. Effective pixels are the number of pixels actually used in the image after the edge pixels have been dropped.

	3MP	4MP	5MP
Largest Image (typical)	2048 x 1536	2272 x 1712	2592 x 1944
Print size at 320dpi	6.5" x 4.8"	7.1" x 5.4"	8.1" x 6.1"
Print size at 240dpi	8.5" x 6.4"	9.5" x 7.1"	10.8" x 8.1"

### Storage of Images on a Digital Camera

A digital camera stores the pictures it takes on a memory card. Common cards found in current digital cameras are SmartMedia, Compact Flash and Memory Stick. (Note: The Sony Mavica stores pictures on a floppy disk.)

A memory card is measured by its memory size, in megabytes (MB). The more memory the card has the more images it can hold. Thus, a 256 MB memory card will be able to hold many more images than a 32 MB memory card.

	3MP	4MP	5MP	6MP
128MB Memory	116	87	70	58
256MB Memory	232	174	140	116
512MB Memory	464	348	280	232

The number of images placed on a card can vary based on the following factors:

- Compression
- Resolution
- Photographic Conditions

### Compression

When a digital camera takes a picture, a very large file is created that holds the image. A picture produced from a 2-megapixel camera will produce a file size around 6MB. To fit more images on a memory card, digital cameras compress these image files. The amount of compression a digital camera does to an image can usually be set by the user. Standard compression modes on digital cameras usually include either:

Good, Better, Best or...  
Normal, Fine, Superfine

The default on most digital cameras will be either "better" or "fine". While the amount of compression a camera does will vary from camera to camera, generally a



"good/normal" compression setting will compress an image at a ratio of 16:1. A "better/fine" setting will compress an image at a ratio of 8:1. A "best/superfine" setting will compress an image at a ratio of 4:1. The higher the compression ratio is, the more images may be fit onto the memory card.

Using these generalized numbers, you can see that having a "good/normal" compression setting allows you fit many more images on a memory card. However, when an image is compressed, detail is lost of the image. The more compression you do to an image, the less detail will be found on the image. Highly compressed images can also come out looking fuzzy and blocky at times.

### Resolution

Resolution is how many megapixels are on a CCD sensor in the digital camera. On most digital cameras, you can change the resolution. For example, a 2-megapixel camera can take images up to 1600x1200, which is a sizable image and one that creates a large file. If you do not want an image this large, you can change the resolution setting on the camera to make the image smaller (this will not effect the quality of the image, only its size). The smaller image size will have a smaller file size, allowing for more images to be placed on the memory card.

For example, most 2-megapixel cameras can take pictures at the following resolutions: 1600x1200, 1024x768 and 640x480.

### Photographic Conditions

Daylight pictures that are highly colorful tend to have a larger file size than do images that are duller in color or have been taken at night. The difference in file sizes is not huge, but photographic conditions do effect to a small degree how many images may be fit onto a memory card.

Image size versus file size.

162 Kilobytes

640 x 480

*(Images shown are scaled for effect.)*



268 Kilobytes

800 x 600

*(Images shown are scaled for effect.)*



435 Kilobytes

1024 x 768

*(Images shown are scaled for effect.)*



818 Kilobytes

1600 x 1200

*(Images shown are scaled for effect.)*



1372 Kilobytes

2048 x 1532

*(Images shown are scaled for effect.)*



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## ***Protecting Your Images***

There are times when you get that "Once in a lifetime" shot. For those occasions, you will want to protect your image.

By protecting the image, you can avoid accidental deletion of images.

*Now, it is time to look at your camera...  
Does it have this feature?*



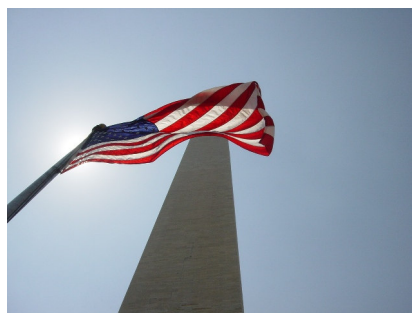
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## ***Resize in the Camera***

Some digital cameras will allow the photographer to resize the image inside the camera. Note: There are a number of software applications that will achieve the same affect as resizing in the camera.



*Now, it is time to look at your camera...  
Does it have this feature?*



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## ***Movie Capabilities***

Some digital still cameras will allow the photographer to shoot a short video. While this is a convenient option, you should not use a digital still camera as a replacement to a conventional movie camera.

*Now, it is time to look at your camera...  
Does it have this feature?*

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## ***Multiburst***

Some new digital camera models, e.i. the new Sony Cybershot cameras, are equipped with a Multiburst movie mode, which captures sixteen small 320x240 images as part of a large 1280x960 image at 7.5/15/30 fps and plays it back as movie clip.

*Now, it is time to look at your camera...  
Does it have this feature?*

Original Image



Individual Images



Free Online Multiburst converter  
[http://www.multiburst.nl/index\\_en.html](http://www.multiburst.nl/index_en.html)



Note – Animation will not work on paper copy :)

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## Ten Tips for Great Pictures + One

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### 1. Look your subject in the eye

Direct eye contact can be as engaging in a picture as it is in real life. When taking a picture of someone, hold the camera at the person's eye level to unleash the power of those magnetic gazes and mesmerizing smiles. For children, that means stooping to their level. And your subject need not always stare at the camera. All by itself that eye level angle will create a personal and inviting feeling that pulls you into the picture.



To High



Better

### 2. Use a plain background

A plain background shows off the subject you are photographing. When you look through the camera viewfinder, force yourself to study the area surrounding your subject. Make sure no poles grow from the head of your favorite niece and that no cars seem to dangle from her ears.



Distracting background



Better

### 3. Use flash outdoors

Bright sun can create unattractive deep facial shadows. Eliminate the shadows by using your flash to lighten the face. When taking people pictures on sunny days, turn your flash on. You may have a choice of fill-flash mode or full-flash mode. If the person is within five feet, use the fill-flash mode; beyond five feet, the full-power mode may be required. With a digital camera, use the

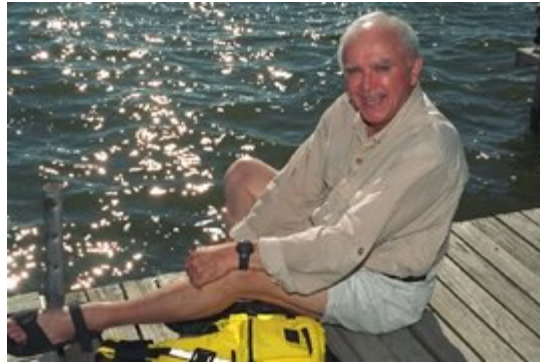


Subject is dark



picture display panel to review the results.

On cloudy days, use the camera's fill-flash mode if it has one. The flash will brighten up people's faces and make them stand out. Also take a picture without the flash, because the soft light of overcast days sometimes gives quite pleasing results by itself.



After

#### 4. Move in close

If your subject is smaller than a car, take a step or two closer before taking the picture and zoom in on your subject. Your goal is to fill the picture area with the subject you are photographing. Up close you can reveal telling details, like a sprinkle of freckles or an arched eyebrow. But don't get too close or your pictures will be blurry. The closest focusing distance for most cameras is about three feet, or about one step away from your camera. If you get closer than the closest focusing distance of your camera (see your manual to be sure), your pictures will be blurry.



Good



Better

#### 5. Move it from the middle

Center-stage is a great place for a performer to be. However, the middle of your picture is not the best place for your subject. Bring your picture to life by simply moving your subject away from the middle of your picture. Start by playing tick-tack-toe with subject position. Imagine a tick-tack-toe grid in your viewfinder. Now place



Boring



your important subject at one of the intersections of lines.

You'll need to lock the focus if you have an auto-focus camera because most of them focus on whatever is in the center of the viewfinder.



Better

## 6. Lock the focus

If your subject is not in the center of the picture, you need to lock the focus to create a sharp picture. Most auto-focus cameras focus on whatever is in the center of the picture. But to improve pictures, you will often want to move the subject away from the center of the picture. If you don't want a blurred picture, you'll need to first lock the focus with the subject in the middle and then recompose the picture so the subject is away from the middle.

Usually you can lock the focus in three steps. First, center the subject and press and hold the shutter button halfway down. Second, reposition your camera (while still holding the shutter button) so the subject is away from the center. And third, finish by pressing the shutter button all the way down to take the picture.



Subject not in focus



Better

## 7. Know your flash's range

The number one flash mistake is taking pictures beyond the flash's range. Why is this a mistake? Because pictures taken beyond the maximum flash range will be too dark. For many cameras, the maximum flash range is less than fifteen feet—about five steps away.

What is your camera's flash range?



Without Flash

Look it up in your camera manual. Can't find it? Then don't take a chance. Position yourself so subjects are no farther than ten feet away. Film users can extend the flash range by using Kodak Max versatility or versatility plus film.



With Flash

## 8. Watch the light

Next to the subject, the most important part of every picture is the light. It affects the appearance of everything you photograph. On a great-grandmother, bright sunlight from the side can enhance wrinkles. But the soft light of a cloudy day can subdue those same wrinkles.

Don't like the light on your subject? Then move yourself or your subject. For landscapes, try to take pictures early or late in the day when the light is orangish and rakes across the land.



Good



Also Good

## 9. Take some vertical pictures

Is your camera vertically challenged? It is if you never turn it sideways to take a vertical picture. All sorts of things look better in a vertical picture. From a lighthouse near a cliff to the Eiffel Tower to your four-year-old niece jumping in a puddle. So next time out, make a conscious effort to turn your camera sideways and take some vertical pictures.



Good



Better

## 10. Be a picture director

Take control of your picture-taking and watch your pictures dramatically improve. Become a picture director, not just a passive picture-taker. A picture director takes charge. A picture director picks the location: "Everybody go outside to the backyard." A picture director adds props: "Girls, put on your pink sunglasses." A picture director arranges people: "Now move in close, and lean toward the camera."

Most pictures won't be that involved, but you get the idea: Take charge of your pictures and win your own best picture awards.



Boring



Better

## 10 + One

Change the angle you are shooting from

- Shoot High
- Shoot Low
- Shoot Left
- Shoot Right

Use the Rule of Thirds

- See Right

Avoid Boring Composition

- Look for lines in the image composition.
- Avoid object that will be distract your eyes from the images subject.
- Use the squint test (squint at the subject) to see what items in the image will stand out.
- Look for natural lines in the composition.
- Look for space around your subject when there are distracters in the image. (This allows room for cropping.
- Shoot your subject from different angles... Shoot High, Shoot Low.

Pictures don't just come out looking right. If you look at some of the pictures you especially like, you will notice that the way the picture was composed probably has a lot to do with it. What we mean by composition is how you place your subject(s) on the blank canvas that's your 4x6 (or 5x7 or 8x10).

Rule of Thirds

If you mentally divide your screen into three horizontal and three vertical sections, where the lines intersect are focal points. Focal points are what the eyes naturally seek out when they look at a photograph. It therefore stands to reason that a focal point is a good place to position our main subject. It's not a hard and fast rule, so don't go bonkers trying to place your subject right at a focal point. As I am fond of reminding people who insist on others strictly obeying rules, "Rules are made to serve us, not the other way round."



The upper and lower horizontal lines also make for a good division of where approximately to put the horizon depending on whether you want more land (or sea) or more sky.

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## Capturing and Printing Digital Images

### Capturing the Image(s)

1. Once the Camera is attached to the computer the following dialog box will open. Select **Copy pictures to a folder on my computer using Microsoft Scanner and Camera Wizard**.

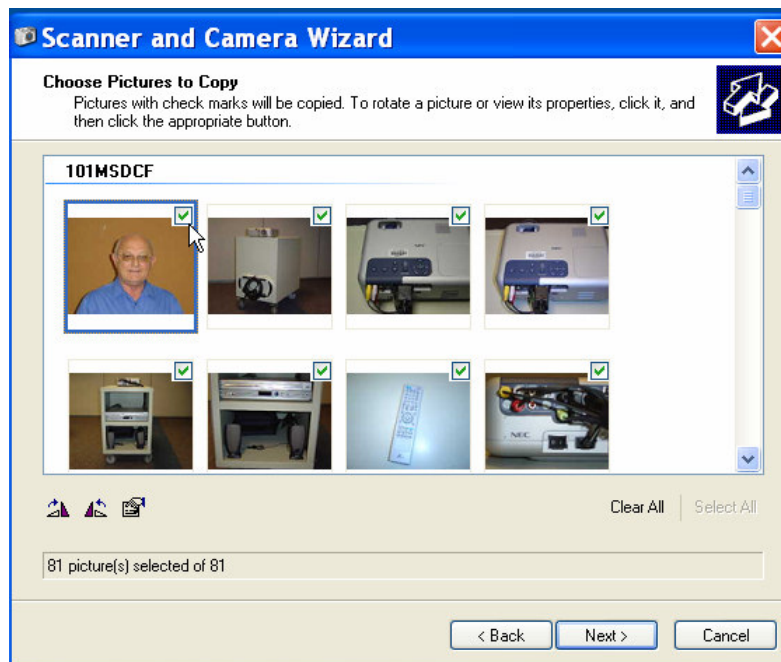


2. Select Next.

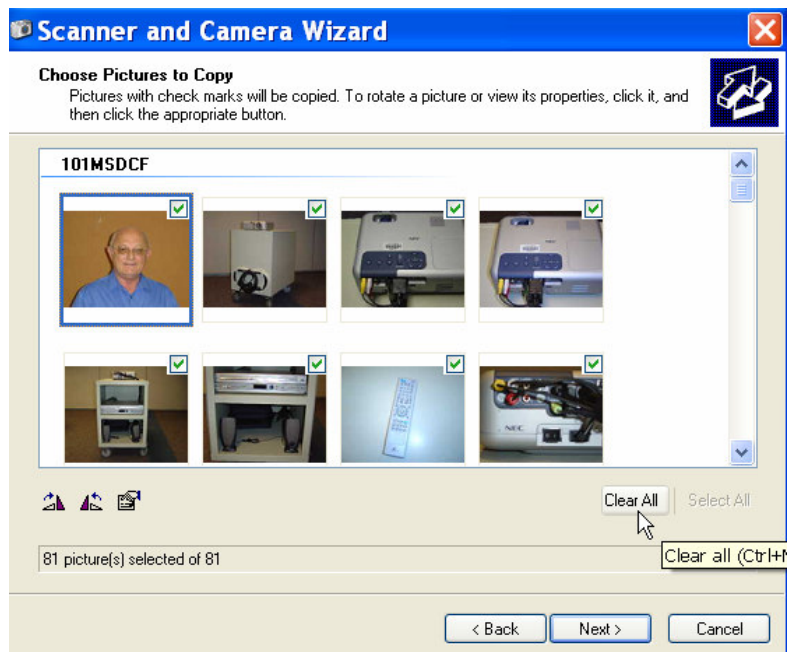




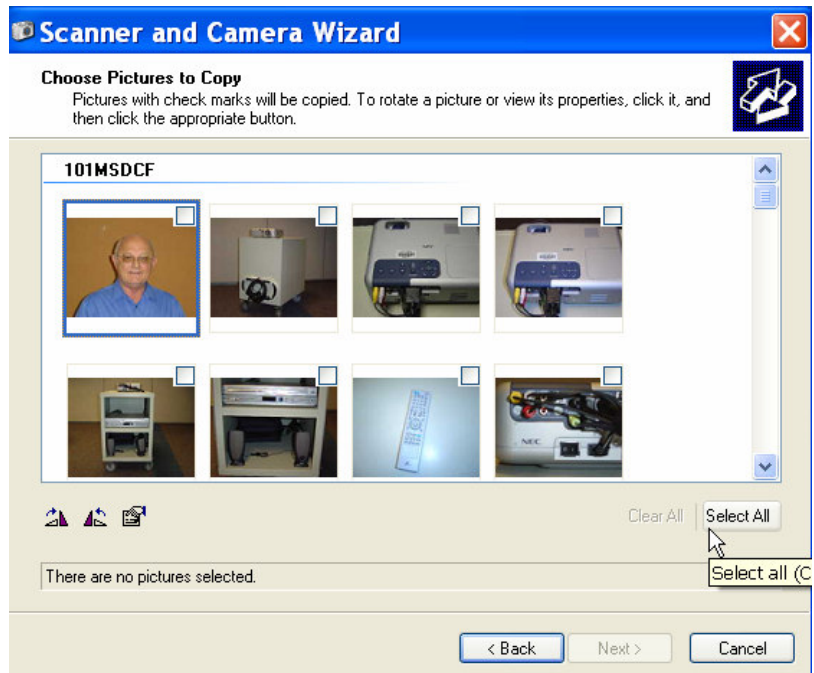
3. The computer has now captured all the images from the camera.



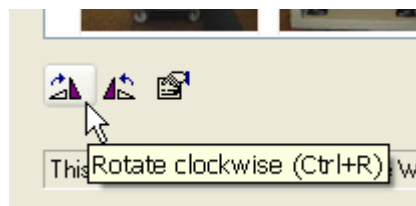
4. Select **Clear All**. This will enable the user to select what pictures they wish to save to the computer. To select individual images, simply click the right corner of the image with the mouse. A green check mark will indicate that the photo has been selected.



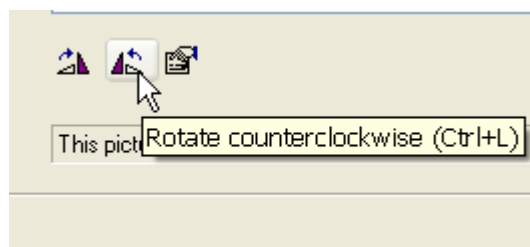
- To select all images in the camera click on **Select All**.



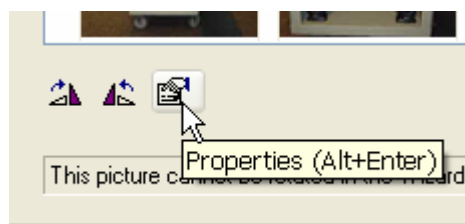
- To rotate the image(s) clockwise click here.



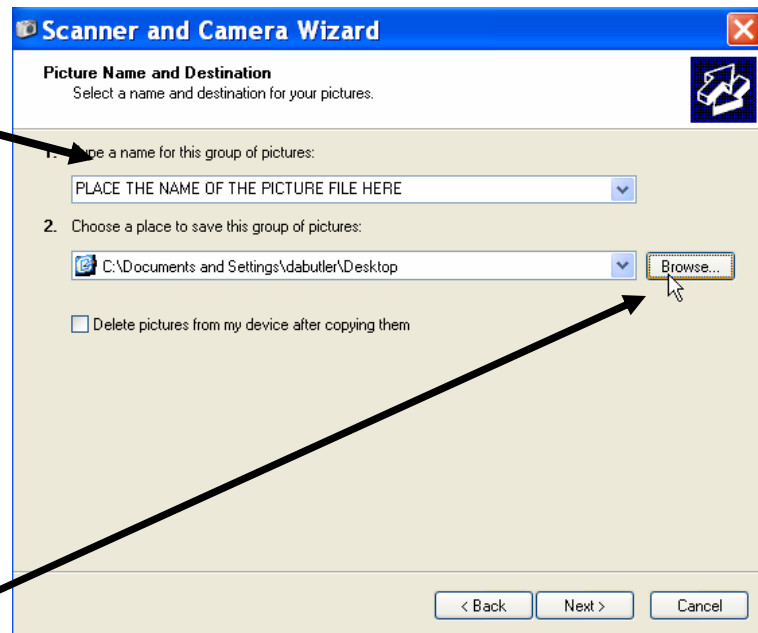
- To rotate the image(s) counterclockwise click here.



- Click here to review the properties of the image selected.



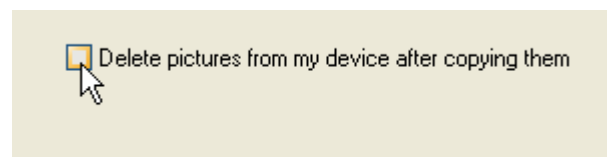
9. Type in the name of the picture file (e.g. Family Vacation Summer 2004).



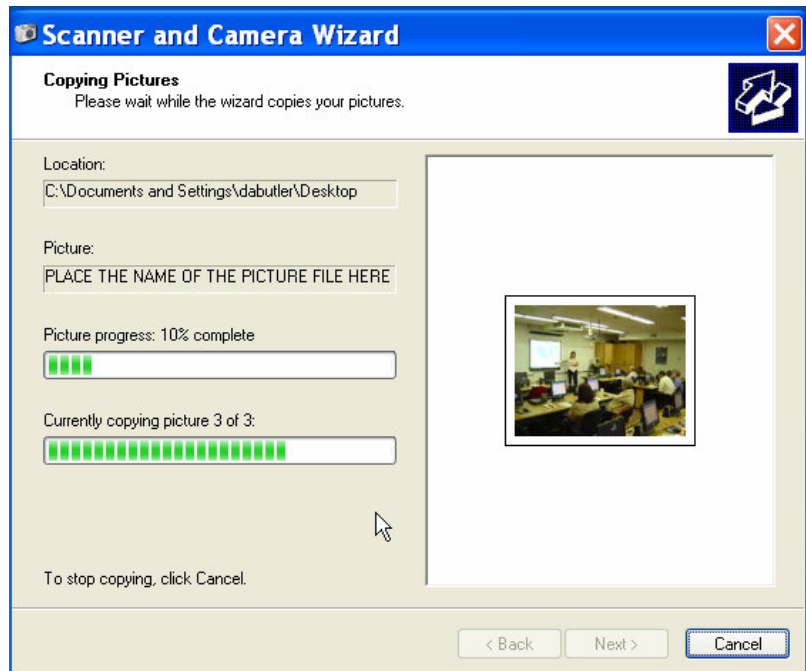
10. Locate the drive to save the image files to.



11. Select this option **only** if you wish to delete all the images off the camera upon completion of the save.

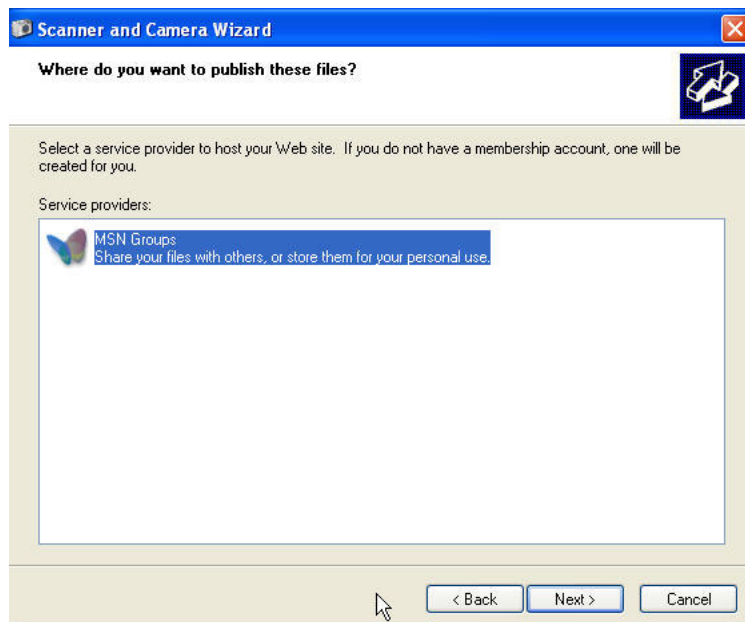


12. Selected images are copied to the computer.

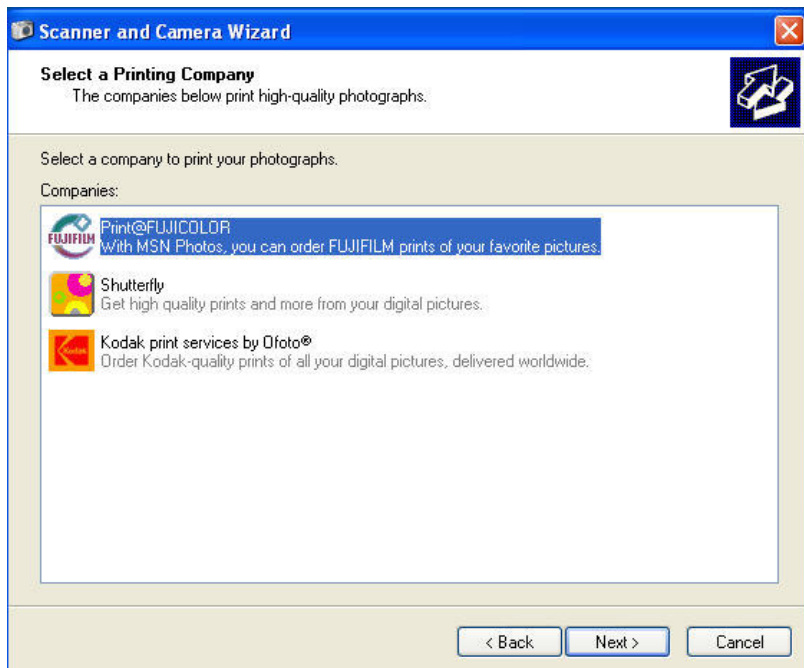


13. There are three options to select from:

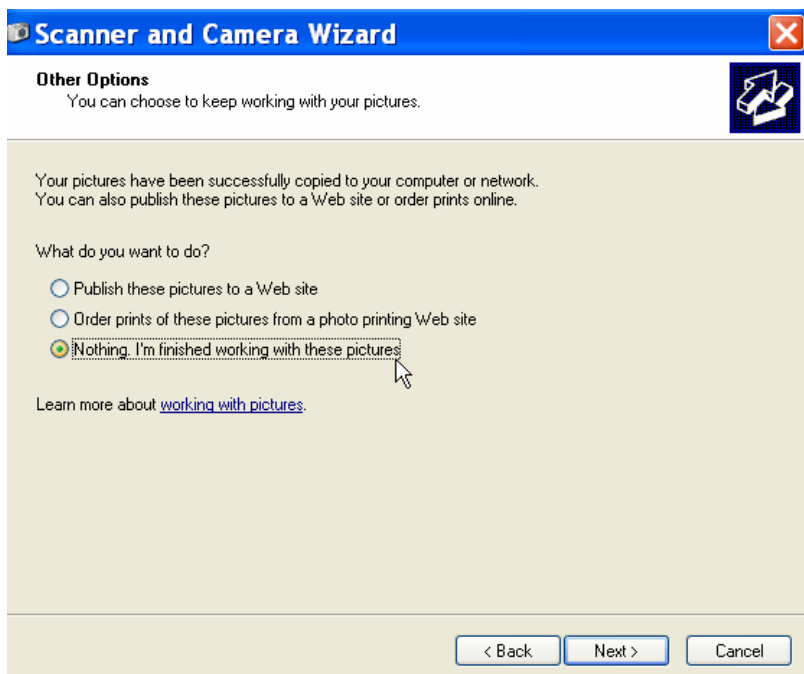
- Publish these pictures to a Web Site
- Order Prints of these from a photo printing Web Site
- Nothing, I'm finished working with these pictures.



**Example of publish picture to a web site**



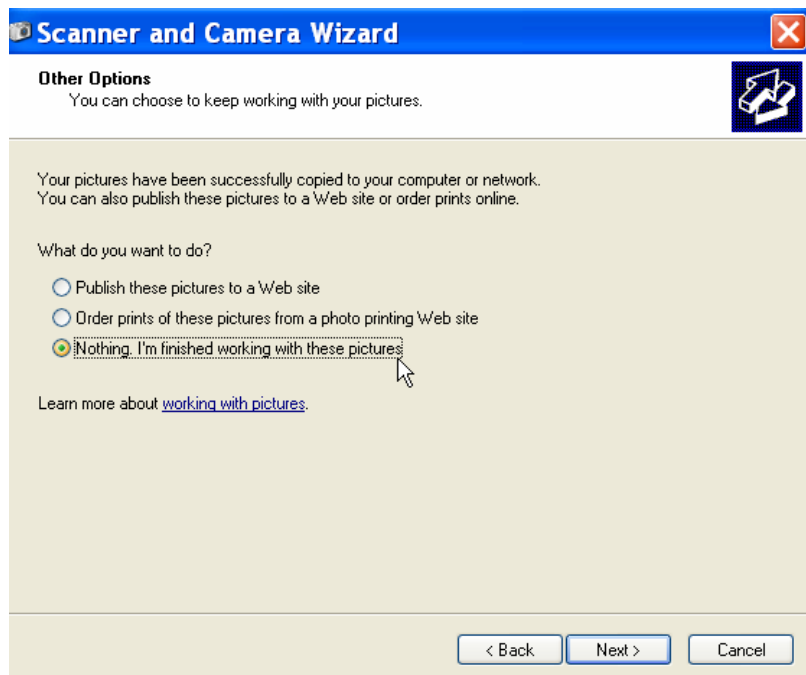
**Example of order Prints of these from a photo printing Web Site**



**Example of "Nothing," I'm finished working with these pictures**



14. In this example, select **Nothing, I'm finished working with these pictures.**



15. Images are now saved to the location selected earlier. Click **Finish**.



## Digital Photography Glossary

Published: May 1, 2002

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<http://www.microsoft.com/windowsxp/using/digitalphotography/glossary/default.mspx>

Struggling with a word or phrase? You're not alone. Photography has long had its own language, and digital photography adds many new terms. This glossary defines commonly used words and phrases in digital photography.

**Ambient light** The natural light in a scene.

**Archival** The ability of a material, including some printing papers and compact discs, to last for many years.

**Aperture** A small, circular opening inside the lens that can change in diameter to control the amount of light reaching the camera's sensor as a picture is taken. The aperture diameter is expressed in f-stops; the lower the number, the larger the aperture. For instance, the aperture opening when set to f/2.8 is larger than at f/8. The aperture and shutter speed together control the total amount of light reaching the sensor. A larger aperture passes more light through to the sensor. Many cameras have an aperture priority mode that allows you to adjust the aperture to your own liking. See also *shutter speed*.

**Application Buffer** A computer program, such as an image editor or image browser. Memory in the camera that stores digital photos before they are written to the memory card.

**Burning** Selectively darkening part of a photo with an image editing program.

**CCD** Charge Coupled Device: one of the two main types of image sensors used in digital cameras. When a picture is taken, the CCD is struck by light coming through the camera's lens. Each of the thousands or millions of tiny pixels that make up the CCD convert this light into electrons. The number of electrons, usually described as the pixel's accumulated charge, is measured, then converted to a digital value. This last step occurs outside the CCD, in a camera component called an analog-to-digital converter.

**CD-R** CD-Recordable: a compact disc that holds either 650 or 700 MB of digital information, including digital photos. Creating one is commonly referred to as *burning a CD*. A CD-R disc can only be written to once, and is an ideal storage medium for original digital photos.

**CD-RW** CD-Rewritable: similar in virtually all respects to a CD-R, except that a CD-RW disc can be written and erased many times. This makes them best suited to many backup tasks, but not for long term storage of original digital photos.

**CMOS** Complementary Metal-Oxide Semiconductor: one of the two main types of image sensors used in digital cameras. Its basic function is the same as that of a CCD. CMOS sensors are currently found in only a handful of digital cameras.

<b>CMYK</b>	Cyan, Magenta, Yellow, Black. The four colors in the inksets of many photo-quality printers. Some printers use six ink colors to achieve smoother, more photographic prints. The two additional colors are often lighter shades of cyan and magenta.
<b>CompactFlash™</b>	A common type of digital camera memory card, about the size of a matchbook. There are two types of cards, Type I and Type II. They vary only in their thickness, with Type I being slightly thinner. A CompactFlash memory card can contain either flash memory or a miniature hard drive. The flash memory type is more prevalent.
<b>Contrast</b>	The difference between the darkest and lightest areas in a photo. The greater the difference, the higher the contrast.
<b>Digital camera</b>	A camera that captures the photo not on film, but in an electronic imaging sensor that takes the place of film.
<b>Dodging</b>	Selectively lightening part of a photo with an image editing program.
<b>Downloading</b>	The process of moving computer data from one location to another. Though the term is normally used to describe the transfer, or downloading, of data from the Internet, it is also used to describe the transfer of photos from a camera memory card to the computer. <i>Example: I downloaded photos to my PC.</i>
<b>DPI</b>	Dots per inch: A measurement of the resolution of a digital photo or digital device, including digital cameras and printers. The higher the number, the greater the resolution.
<b>EXIF</b>	Exchangeable Image File: the file format used by most digital cameras. For example, when a typical camera is set to record a JPEG, it's actually recording an EXIF file that uses JPEG compression to compress the photo data within the file.
<b>External flash</b>	A supplementary flash unit that connects to the camera with a cable, or is triggered by the light from the camera's internal flash. Many fun and creative effects can be created with external flash.
<b>File</b>	A computer document.
<b>Fill flash</b>	A flash technique used to brighten deep shadow areas, typically outdoors on sunny days. Some digital cameras include a fill flash mode that forces the flash to fire, even in bright light.
<b>Fire</b>	Slang for shooting a picture. <i>Example: I pressed the shutter button to fire.</i>
<b>FireWire</b>	A type of cabling technology for transferring data to and from digital devices at high speed. Some professional digital cameras and memory card readers connect to the computer over FireWire. FireWire card readers are typically faster than those that connect via USB. Also known as IEEE 1394, FireWire was invented by Apple Computer but is now commonly used with Windows-based PCs as well.
<b>Grayscale</b>	A photo made up of varying tones of black and white. Grayscale is

synonymous with black and white.

<b>Highlights</b>	The brightest parts of a photo.
<b>Histogram</b>	A graphic representation of the range of tones from dark to light in a photo. Some digital cameras include a histogram feature that enables a precise check on the exposure of the photo.
<b>Image browser</b>	An application that enables you to view digital photos. Some browsers also allow you to rename files, convert photos from one file format to another, add text descriptions, and more.
<b>Image editor</b>	A computer program that enables you to adjust a photo to improve its appearance. With image editing software, you can darken or lighten a photo, rotate it, adjust its contrast, crop out extraneous detail, remove red-eye and more.
<b>Image resolution</b>	The number of pixels in a digital photo is commonly referred to as its image resolution.
<b>Inkjet</b>	A printer that places ink on the paper by spraying droplets through tiny nozzles.
<b>ISO speed</b>	A rating of a film's sensitivity to light. Though digital cameras don't use film, they have adopted the same rating system for describing the sensitivity of the camera's imaging sensor. Digital cameras often include a control for adjusting the ISO speed; some will adjust it automatically depending on the lighting conditions, adjusting it upwards as the available light dims. Generally, as ISO speed climbs, image quality drops.
<b>JPEG</b>	A standard for compressing image data developed by the Joint Photographic Experts Group, hence the name JPEG. Strictly speaking, JPEG is not a file format, it's a compression method that is used within a file format, such as the EXIF-JPEG format common to digital cameras. It is referred to as a lossy format, which means some quality is lost in achieving JPEG's high compression rates. Usually, if a high-quality, low-compression JPEG setting is chosen on a digital camera, the loss of quality is not detectable to the eye.
<b>LCD</b>	Liquid Crystal Display: a low-power monitor often used on the top and/or rear of a digital camera to display settings or the photo itself.
<b>Media</b>	Material that information is written to and stored on. Digital photography storage media includes CompactFlash cards and CDs.
<b>Megabyte (MB)</b>	A measurement of data storage equal to 1024 kilobytes (KB).
<b>Megapixel</b>	Equal to one million pixels.
<b>Memory Stick®</b>	A memory card slightly smaller than a single stick of chewing gum. Like CompactFlash and SmartMedia, it is flash-based storage for your photos.
<b>NiMH</b>	Nickel Metal-Hydride: a type of rechargeable battery that can be

recharged many times. NiMH batteries provide sufficient power to run digital cameras and flashes.

<b>Online photo printer</b>	A company that receives digital photos uploaded to its Web site, prints them, then sends the prints back by mail or courier.
<b>Panning</b>	A photography technique in which the camera follows a moving subject. Done correctly, the subject is sharp and clear, while the background is blurred, giving a sense of motion to the photo.
<b>Pixel</b>	Picture Element: digital photographs are comprised of thousands or millions of them; they are the building blocks of a digital photo.
<b>RAW</b>	The RAW image format is the data as it comes directly off the CCD, with no in-camera processing is performed.
<b>Red-eye</b>	The red glow from a subject's eyes caused by light from a flash reflecting off the blood vessels behind the retina in the eye. The effect is most common when light levels are low, outdoor at night, or indoor in a dimly-lit room.
<b>RGB</b>	Red, Green, Blue: the three colors to which the human visual system, digital cameras and many other devices are sensitive.
<b>Saturation</b>	How rich the colors are in a photo.
<b>Sensitivity</b>	See <i>ISO speed</i> .
<b>Serial</b>	A method for connecting an external device such as a printer, scanner, or camera, to a computer. It has been all but replaced by USB and FireWire in modern computers.
<b>Sharpness</b>	The clarity of detail in a photo.
<b>Shutter speed</b>	The camera's shutter speed is a measurement of how long its shutter remains open as the picture is taken. The slower the shutter speed, the longer the exposure time. When the shutter speed is set to 1/125 or simply 125, this means that the shutter will be open for exactly 1/125th of one second. The shutter speed and aperture together control the total amount of light reaching the sensor. Some digital cameras have a shutter priority mode that allows you to set the shutter speed to your liking. See also <i>aperture</i> .
<b>SmartMedia™</b>	A wafer-thin, matchbook size memory card. This is also a flash-memory based storage medium.
<b>Thumbnail</b>	A small version of a photo. Image browsers commonly display thumbnails of photos several or even dozens at a time. In Windows XP's My Pictures, you can view thumbnails of photos in both the Thumbnails and Filmstrip view modes.
<b>USB</b>	Universal Serial Bus: a protocol for transferring data to and from digital devices. Many digital cameras and memory card readers connect to the USB port on a computer. USB card readers are typically faster than cameras or readers that connect to the serial



port, but slower than those that connect via FireWire.

**White balance** A function on the camera to compensate for different colors of light being emitted by different light sources.

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